RICE BUILDING WORKSHOP
Arch 327 (3 hr. credit)/
Arch 627 (4 hr. credit)
Fall 2016
Anderson Hall 309
T/Th 10:50-12:05

Backyard Homes. cityLAB. Dana Cuff, Tim Higgins & Per-Johan Dahl, 2010.

+HOUSE:
A PROTOTYPE ACCESSORY DWELLING UNIT

Over many projects and many years, the Rice Building Workshop has researched smaller, affordable houses in an urban context. Now, we are joining Rice Engineering, NASA, and Chalmers University in Sweden to look at our smallest iteration yet: **+House**, a prototype accessory (backyard) dwelling unit for 2 occupants, using advanced technologies.

While Houston at its periphery continues to push outward with large single-family homes at very low densities, and inside its loop fills up with townhouses, apartment blocks, and apartment towers at much greater densities, there is an unmet need for renewing older neighborhoods with housing options that make efficient use of the land while maintaining the local fabric and character. At the same time, rising construction costs, uncertain energy costs, aging infrastructure, and increasing taxes demand that new housing be resource-efficient and cost-effective to deploy.

In this course, the first semester of a multi-semester project, we will explore one pathway to meeting this need for new, energy-efficient housing in Houston within the existing fabric: the **+House**, a 200 ft^2 demonstrator house intended as an accessory dwelling unit (ADU) placed on a lot with an existing house.

The **+House** will include space for sleeping, bath, work, and storage for 1-2 occupants. It will be an opportunity for research in advanced technologies in structure, envelope, materials, components, fabrication, renewable energy, and resource efficiency. This will be incorporated into a package that can be produced as components in a factory setting and delivered to a site. This semester, we will design the **+House**; next semester we will build the prototype on campus, and install it on a site in Houston.

COLLABORATION

This course is highly collaborative in every sense. At each stage, architecture students will work together in teams toward common goals. As the work shifts from conceptual design to design development to systems design, teams will reconstitute to address the challenges at hand. We are also collaborating with Rice Engineering on the integration of architecture and technical systems.

We will work in parallel with an architecture studio at Chalmers University (Gothenberg, Sweden), which is doing a project to design and build a 25 m^2 demonstrator house (the 'Dare2Build Project'), an accessory dwelling in a completely different setting: a remote island in Sweden. We will develop similar programmatic objectives, and seek 'points of tangency' with their efforts.

We will also see what we can learn from consultants at NASA's New Initiatives Office, which focuses on systems engineering and design of advanced human habitats for the ISS and future Mars missions.

SCHEDULE

August

Week 1	Introduction
Week 2	Research and precedents

September

Week 3	Present research. Begin conceptual designs
Week 4	Present conceptual designs
Week 5	Design development
Week 6	Continue design development

October

Week 7	Present design development
Week 8	*Mid-Term Recess*/ Design in detail, by systems
Week 9	Continue design in detail
Week 10	Continue design in detail

November

Week 11	Design in detail and prototyping
Week 12	Continue design in detail and prototyping
Week 13	Documentation
Week 14	Final Presentation
Week 15	*Charrette Week* and Thanksgiving (work schedule to accommodate)

December

Week 16	*Jury Week* (work schedule to accommodate)
Week 17	Concluding and moving forward.

COURSE FORMAT AND COMMITMENT

This is a design-build course sequence over several semesters, involving research, design, prototyping, and eventual fabrication and construction of the **+House**. Students are encouraged, but not obligated, to take more than one semester.

The fall RBW seminar is dual listed as a three- and four-credit-hour course, and in some ways this will suggest the level of commitment for each student. In all events, this course will require a considerable level of commitment from all students, including, as in all elective courses, time beyond the class meeting times. Students registered for four credit-hours will be expected to contribute more to the efforts. This difference is not undergrad/grad, but the commitment that you wish to make for the term.

GRADING CRITERIA

The semester grades will be based on each student's contributions to the overall project and to the teams on which they participate, and on their own efforts. All students are expected to be present, attentive and fully engaged, to contribute to class and team work and discussions, and to actively participate in presentations and reviews throughout the semester. Each student should keep a contemporaneous notebook recording what they are working on, with whom, and how much time is spent.

A Excellent work, exemplary initiative and leadership
B Above average work, very active participation
C Acceptable work, adequate participation
D Unsatisfactory work, insufficient participation

COURSE OBJECTIVES AND LEARNING OUTCOMES (NAAB):

- Students will work on real projects of limited scale, in a community context, with social ambitions.
- Students will manage projects from programming, through design and detailing, to implementation and completion.
- Students will collaborate with client groups, consultants and professionals, with
- contractors and subcontractors, and with one other, to achieve common project goals.

STUDENT PERFORMANCE CRITERIA ADDRESSED (NAAB):

- A.8 Cultural diversity and social equity.
- B.1 Pre-design.
- B.8 Building materials and assemblies.
- C.3 Integrative design.
- D.2 Project management.

TOPICAL OUTLINE:

- Research and programming 25%
- Conceptual design and presentations 25%

- Detail design and prototyping 50%.

RICE HONOR CODE

In this course, all students will be held to the standards of the Rice Honor Code, a code that you pledged to honor when you matriculated at this institution. If you are unfamiliar with the details of this code and how it is administered, you should consult the Honor System Handbook at http://honor.rice.edu/honor-system-handbook/. This handbook outlines the University's expectations for the integrity of your academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process.

DISABILITY SUPPORT SERVICES

If you have a documented disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with Disability Support Services (Allen Center, Room 111 / adarice@rice.edu / x5841) to determine the accommodations you need; and 2) talk with either of us to discuss your accommodation needs.

SYLLABUS CHANGE POLICY

This syllabus is only a guide for the course and is subject to change with notification. Additional resources will be posted on OwlSpace, with e-mail announcements to students.

FACULTY:

Architecture: Danny Samuels
Office: Anderson Hall 302
Contact: samu@rice.edu
713-392-1746 (m)
Office Hours: By appointment

Engineering: Roque Sanchez
Office: Duncan Hall 1013
Contact: roque@rice.edu
713-348-4124 (o)
505-916-1031 (m)
Office Hours: By appointment